ENTOMOLOGICAL NEWS

JUNE 1945

Vol. LVI **No. 6**

CONTENTS

Needham—Tracking dragonfly nymphs 141
Cuthbert & Cuthbert—Cat eats cicadas 143
Rehn—Dermaptera from the Cameroons 144
Wilson—Papilio mylotes 148
Linsley—Paranomada and Melecta 149
Chamberlain—A new henicopid centipede 153
Alexander—Undescribed crane-flies, Part IV 155
Personals 162
Notes and News in Entomology 163
Current Entomological Literature 164

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $3.00 domestic; $3.30 foreign; $3.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage prescribed for in Section 1, Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. Editorial Staff: E. T. CRESSON, JR., E. J. F. MARX, J. A. G. REHN, A. G. RICHARDS, JR., and R. G. SCHMIEDER.

Subscription price, per yearly volume of 10 numbers: Domestic, $3.00; Foreign, $3.30; Canada, $3.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISING RATES: Full width of page. Payments in advance.

	1 Inch	2 Inches	3 Inches	6 Inches
One Issue	$1.00	$ 1.90	$ 2.75	$ 4.80
Five Issues	4.50	8.50	12.00	21.00
Ten Issues	8.00	15.00	21.00	36.00

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

Proof will not be sent to authors, so manuscripts must be in final form for printing.

ILLUSTRATIONS will be published at the author's expense as follows: Cost of engraving plus cost of printing text-figures exceeding 2 inches in height; or plus cost of printing insert plates. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $2.50; 50 copies, $2.50; 100 copies, $3.00. 5–8 pages, 25 copies, $4.00; 50 copies, $4.00; 100 copies, $4.75. 9–12 pages, 25 copies, $6.25; 50 copies, $6.25; 100 copies, $7.25. Covers: first 50, $2.75; additionals at 2 cents each. Plates, printed on one side: first 50, $2.00; additionals at 1½ cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LVI JUNE, 1945 No. 6

Tracking Dragonfly Nymphs

By JAMES G. NEEDHAM, Cornell University

There is a place on the eastern shore of Lake Placid in Highlands County, Florida, where I like to go collecting for dragonflies. It was there that I found the big *Didymops floridensis* common, and there that I learned the simple trick of tracking Progomphus nymphs.

The place is called Bear Point. A low ridge of the land ends in a jutting cape that curves out and around a little bay. On the inner side of this cape, sheltered from the waves, are banks that slope abruptly into deeper water with fringing mats of tangled floating grasses, where collecting for nymphs is difficult. But on the outer side, that is fully exposed to a mile-long stretch of open water, the beach is shelving, and nearly bare, and one may walk far out on it and collect anywhere. There are alternating stretches of bare sand and patches of stunted bottom-rooting sedges: sedges whose creeping rootstocks interlace and hold against the waves.

I first found this collecting ground on March 4th, when Mr. Richard Archbold of the Archbold Biological Station took me with a swimming party to this beach. The party swam and fished; he and I collected dragonfly nymphs.

Cast skins of the big *Didymops floridensis,* left at emergence by the adults, hanging to stubby sedge clumps above the water line, first attracted our attention. Unlike the northern *D. transversa,* this *Didymops* climbs the first available support that is broad enough to accommodate its flat venter and widely outspread legs. It makes use of a tangle of stems or of several stems that stand close together, and transforms usually within a foot of the water's surface. It does not go out on land and

climb trees. We found plenty of exuviae, but no nymphs. Apparently its season of emergence was already passed.

We raked and sifted the sand wherever there was an opening among the sedges wide enough to permit the use of our rake-net, and soon were finding many nymphs of *Progomphus,* mostly less than half grown. Then we began finding their trails on the surface of the sand, and using them for guidance in our raking.

Anyone who has collected dragonfly nymphs carefully will have noticed the winding tracks of these burrowing Gomphine nymphs—so like clam-trails in miniature. The Progomphus nymph burrows like a mole spreading the sand to right and left with inturned fore and middle feet, and lifting the roof with its head. But unlike the mole, the nymph then cleaves that roof with his upturned tail and leaves a groove down the middle of it. The anal respiratory opening at the tip of the tail is thus kept in contact with clear water.

For some time we found only small nymphs, but just before leaving Mr. Archbold found near shore a single well-grown specimen that I conveyed eagerly to a rearing cage. I returned on March 10th to see if I could not get some more big ones. This time I began by observing the trails more carefully. In some of the shore pools, sheltered from wave action, there were veritable labyrinths of them, winding and twisting, crossing and recrossing. That they were made by nymphs of different sizes was evidenced by the unequal width of the trails. I found a single isolated one that I could follow for a distance of about thirty feet—the length of burrow, many times that distance—and lo! the nymph that made it was still working forward under the sand at the end of it. This was the clue I needed.

It so happened that on the morning of that March 10th there was a light on-shore breeze that had erased the old trails, and fresh ones were being made. What I had to do to find the well-grown nymphs was to pick out the wider trails and follow them to the end. The end was easily recognized if it lay in smooth sand; for there the median groove stopped and the bordering ridges came to a rounded confluence. Following this

clue, this hint from nature, I soon had all the big nymphs of *Progomphus* that I cared to take away, and that with very little use of the net. If only the tracking be done understandingly, the collecting of these nymphs may be done neatly with a kitchen strainer big enough to sift a cupful of sand, or even, but more clumsily, with bare fingers.

A Cat That Eats Cicadas

By Nicholas L. Cuthbert and Mabel J. Cuthbert

At dusk one hot summer evening (July 8, 1944) in a small park in Kirksville, Missouri, we witnessed what was to us an unusual sight. A small house-cat was there catching something in the grass. We made him spit out the object he had just taken into his mouth and it proved to be the fully developed nymph of a cicada *Tibicen linnei* (S. & G.). We followed the cat on his hunting expedition through the park and in the next twenty-eight minutes he caught exactly twenty-eight cicada nymphs, swallowing each one instantly after a few crunching bites. As soon as one was finished he was on the alert for another, looking intently in all directions and with his ears pricked up. Several times he located one about four yards away and went running for it; at other times he walked deliberately toward his prey. Once he caught a nymph after it had crawled about two feet up the trunk of a tree. In the dusk we were unable to see the cicadas in the grass but the cat evidently made use of his keen ears and eyes to detect them as they emerged from the ground. We left the park after about forty minutes but the cat remained although by this time his search for cicada nymphs had slackened considerably.

On several other days one of us went at dusk to this same park. On each occasion the same cat was present and as before was industriously hunting cicada nymphs. At one time eight nymphs were located, caught, and eaten in four minutes. In all, the cat was observed on four different evenings for a total of seventy-seven minutes and during that time he ate sixty-six cicada nymphs.

Forficuline Dermaptera from the Southern Cameroons

By James A. G. Rehn, The Academy of Natural Sciences of Philadelphia

A considerable portion of the insect records from the Cameroons to be found in scientific literature lacks exact geographic information as to the place of capture of the material on which they are based.

The marked difference in faunal characteristics which exists between the northern grassland and savanna portion of the Cameroons and the southern (Lower Guinea) rain-forest region makes it desirable, in view of this lack of definiteness in much of the more historic material, that exact localities be recorded whenever available. This is particularly important to the zoogeographer weighing the very marked contrast and possibly different derivation of the life of these closely situated but exceedingly dissimilar areas. Similarly these data are essential to the specialist in any field studying his problems in a broadly analytic and evolutionary fashion.

Some years past the Carnegie Museum at Pittsburgh placed in my hands a small but interesting collection of Dermaptera from five localities in the present French Cameroons. All the specimens bore detailed information as to their capture, and the purpose of the present paper is to place on record for future usefulness the information on the Forficulina of this series, with such comments as seem desirable at this time. The material belonging to the Hemimerina has already been critically studied in a recent revision of that suborder.[1]

For summaries of the distribution of a considerable number of species of Dermaptera which occur in the Cameroons, reference should be made to my "Synonymic Catalogue of the Dermaptera of the Belgian Congo." [2]

[1] "A Study of the Genus Hemimerus (Dermaptera, Hemimerina, Hemimeridae)." By James A. G. Rehn and John W. H. Rehn. Proc. Acad. Nat. Sci. Phila., LXXXVII, pp. 457–508, figs. 1–47, (1936).

[2] Bull. Amer. Mus. Nat. Hist., XLIX, pp. 401–413, (1924).

The series here listed comprises 127 specimens, representing nine species, from five localities. All of the latter are in the Lower Guinea forest area of the southern Cameroons, their approximate positions being:

Batanga (Great Batanga), on coast about 10 miles south of Kribi. Approximate position 2° 45′ N., 9° 52′ E.

Edea, on Sanaga River about 50 miles from its mouth. Approximate position 3° 42′ N., 10° 20′ E.

Efulen, inland and due east from Kribi about 25 miles. Approximate position 2° 45′ N., 10° 40′ E.

Lolodorf, inland and due east from mouth of Nyong River about 60 miles. Approximate position 3° 10′ N., 10° 50′ E.

Metet, a large mission station 200 miles east of Kribi. This information, kindly furnished by the late Dr. Hugo Kahl, would place Metet near the upper Ja River, a tributary of the Sanga.

Pygidicranidae

Dicrana biaffra (Bormans)

Lolodorf; IX, 1926; (A. I. Good); 1 ♂. Edea; IX, 1923; (J. A. Reis); 1 ♀.

The Edea female fully agrees with a "Cameroons" female in the Hebard Collection.

Echinosoma afrum (Palisot de Beauvois)

Lolodorf; V, IX and XI 6, 1926; (A. I. Good); 6 ♂, 9 immature individuals.

The immature individuals, which represent the two instars preceding maturity, are referred to *afrum* with some slight question, but the males are fully typical.

Echinosoma occidentale Bormans

Lolodorf; V and IX, 1926; (A. I. Good); 2 ♂, 1 immature ♂. Efulen; XI, 1912; (J. A. Reis); 1 ♂. Batanga; II and IV, 1914; (F. H. Hope); 1 ♂, 1 immature ♀.

The Batanga immature female is in the instar preceding maturity.

LABIDURIDAE

Labidura riparia (Pallas)

Lolodorf; II, 1921, V, 1914 and 1925, IX, 1913, XII 23, 1920; (A. I. Good); 11 ♂, 6 ♀, 6 immature individuals.

This series represents both light and dark forms, the bulk of the material being intermediate in tone. Both sexes show marked size variation, and one quite small male lacks the usual internal median tooth on the forceps.

APACHYIDAE

Apachyus murrayi Dohrn

Lolodorf; IX, 1925 and 1926, X 22, 1914; (A. I. Good); 2 ♂, 3 ♀, immature ♂. Batanga; IV, 1926 and IX, 1913; (F. H. Hope and A. I. Good); 3 ♀.

LABIIDAE

Labia curvicauda (Motschulsky)

Lolodorf; V, 1923, XI, 1926; (A. I. Good); 1 ♂, 2 ♀. Batanga; (A. I. Good); 1 ♂.

The Lolodorf individuals are uniformly quite small, while the Batanga male is very appreciably larger (length of body, including forceps, 5.62 mm.).

CHELISOCHIDAE

Chelisoches flavipennis (Fabricius)

Lolodorf; I 15 and 30, 1919, II 7, 1918 and III 15, 1919; (J. A. Reis); 5 ♂, 5 ♀: same locality; II, 1914, V, 1923, IX, 1925, X 24, 1922, XI 30, 1913 and XII, 1914; (A. I. Good); 4 ♂, 5 ♀, 3 immature individuals. Edea; IV, 1922; (J. A. Reis); 1 ♂, 1 ♀. Efulen; IV, 1921, XI 17, 1922; (H. L. Weber); 1 ♂, 1 ♀. Batanga; IV 15, 1920 and IX, 1913; (A. I. Good); 3 ♂, 2 ♀, 1 immature individual.

This series shows marked size variation in both sexes, in the Lolodorf series alone the extremes (in millimeters) being as follows:

	Length of body, with forceps	Length of forceps
♂	16.4	4
♂	24.9	7.1
♀	18.5	4.8
♀	22.7	7.4

The males in the series show a very considerable range in forceps development, from a quite marked cyclolabic extreme, one of which is the minimum for the sex given above, to a distinctly macrolabic alternative, typical of which is the maximum here measured. In both types the proximal lamellate section is similar in size and character, the plasticity being in the degree of development and relative robustness of the arcuate distal portion.

The pale antennal band is found on the eleventh or twelfth article, and may involve one whole segment and halves of the preceding and following ones.

Euenkrates variegatum (Kirby)

Batanga; IV 15, 1920; 6♂, 4♀. Metet; XII 12, 1919; (A. I. Good); 1♂.

Two Batanga specimens (one of each sex) are depauperate individuals and quite small, the male with generalized forceps, yet both with fully developed tegmina and wings. The males have been compared with a male from Bitje, on the Ja River, in the southern Cameroons, already recorded.[3] The following measurements (in millimeters) show the range in size seen in the present series.

	Length of body, with forceps	Length of forceps
♂, Metet	17.2	5.9
♂, Batanga	14.6	5.4
♂, Batanga	11.8	3.8
♀, Batanga	16.8	3.8
♀, Batanga	12.6	3.3

[3] Rehn, Entom. News, XXXVIII, p. 149, (1927).

FORFICULIDAE

Diaperasticus erythrocephalus (Olivier)

Edea; IX, IX 4 and X, 1923; (J. A. Reis); 5 ♂, 4 ♀.

Lolodorf; I and III, 1925, IV, 1923, V, 1923, X, 1925; (A. I. Good); 5 ♂, 4 ♀, 1 immature ♀: same locality; I 30, 1919; (J. A. Reis, Jr.); 1 ♂, 2 ♀. Batanga; II–IV, 1914; (F. H. Hope); 3 ♀: same locality; IX, 1913; (A. I. Good); 1 ♂.

One female from Batanga and another from Lolodorf have no evident wings. The Lolodorf specimen is exceedingly small, measuring but 9.4 mm. in total length, although that from Batanga is hardly at all under the average dimensions of other Cameroons females. The Lolodorf female measured is the smallest specimen of the species in a series of over one hundred and twenty individuals from a wide range of localities, now before me in the series of the Academy of Natural Sciences of Philadelphia.

Papilio mylotes Bates (Lepidoptera: Papilionidae)

By KENT H. WILSON, Fort Worth, Texas

In the summer of 1937 the author captured a specimen of *Papilio mylotes* at his home in Fort Worth, Texas. The specimen, however, was destroyed in the author's absence abroad.

The presence of *Papilio mylotes* in the United States has been very doubtful in the past. Holland in his *The Butterfly Book* stated it as being "extremely doubtful." He failed to find any "record of its occurrence north of the Rio Grande." McDunnough did not mention it in his *Check List of the Lepidoptera of Canada and the United States,* 1938. Dr. W. J. Showalter in *Our Friends and Foes and Spiders* (excerpts from the National Geographic Magazine) said, "Occasionally members of the species wander as far north as our Gulf coast."

A New Species of Paranomada with Notes on Melecta Thoracica Cresson

By E. Gorton Linsley, University of California, Berkeley

The following notes are based upon material very kindly submitted for study by Mr. P. H. Timberlake, of the Citrus Experiment Station, Riverside, California.

Paranomada californica new species

Female.—Color black, shining; integument almost impunctate; pubescence white. *Head* with occiput clothed with long, pale hairs; upper frons and vertex subglabrous; antennae with a rosette of long, plumose, white hairs about bases, scape clothed with moderately long, white hairs; clypeus shining, subglabrous, reddish; abdomen pale reddish at base, apices piceous; maxillary palpi with four free segments. *Thorax* black, shining; pronotal collar and tubercles densely clothed with pale hairs; mesoscutum and mesoscutellum subglabrous; metanotum pubescent, more densely at sides; mesepisterna with vertical face densely clothed with appressed white hairs; propodeum with dense patches of white pubescence on lateral margin, over anterior angles of triangular area, and on each side of posterior angle of area; intermediate and posterior coxae broadly lamellate; wings tinted with fuscous, anterior pair with a large pale area beyond submarginal and discoidal cells; veins and stigma dark brown. *Abdomen* black, shining, with a velvety band of plumose white pubescence along apical margin of tergites two, three, and four, band of second tergite broadly, of third tergite narrowly, interrupted at middle; pygidial plate elongate, apex narrowly triangular, emarginate. Length 7 mm., anterior wing 5 mm.

Male.—Form a little more slender than female; abdominal bands broadly interrupted on second tergite, successively less broadly interrupted on tergites three, four, and five; pygidial plate narrow, apex narrowly rounded; genitalia with sagittae about as long as stipites, nearly straight externally. Length 7 mm., anterior wing, 5.5 mm.

Holotype female and *allotype* male (Timberlake Collection), from Yucca Valley, San Bernardino County, CALIFORNIA, September 28, 1944, collected by Mr. P. H. Timberlake. Both examples were captured flying close to the ground at flowers of *Gutierrezia lucida* in company with *Exomalopsis verbesinae* Ckll. Mr. Timberlake suggests that *Exomalopsis* may be the host of this genus, calling attention to the fact that the two fly together and share a striking similarity in general appearance and sculpture.

This species is closely related to *P. velutina* Linsley (Arizona and Lower California), differing at once from *P. nitida* Linsley and Michener (Arizona) in the black color and four-segmented maxillary palpi. From *P. velutina* it may be distinguished by the white rather than ochraceous or golden pubescence, and the interrupted pubescent bands of the abdomen (in the female, broadly interrupted on second tergite, narrowly on third; in male, very broadly on second tergite, successively more narrowly on third, fourth, and fifth tergites.) The female may be further distinguished by the more narrowly triangular pygidial plate, the male also by the narrow pygidial plate which is narrowly rounded at apex, and possibly also by the slightly longer sagittae of the genitalia. These differences are expressed in the following key:

Females

1. Color black; maxillary palpi with four free segments.....2
   Color pale reddish-brown; maxillary palpi with five free segments; abdominal tergites two to four with white pubescent bands; wings clouded with pale brownish, veins and stigma light brown. 7.5 mm. Arizona.....*nitida*
2. Pubescent bands of abdominal tergites ochraceous or golden, entire; pygidial plate more broadly triangular, apex subtruncate. 8.5–11 mm. Arizona and Lower California *velutina*
   Pubescent bands of abdominal tergites white, broadly interrupted at middle of second tergite, narrowly on third tergite; pygidial plate more narrowly triangular, apex shallowly emarginate. 7 mm. So. California..*californica*

Males

1. Pubescent bands of abdominal tergites two to five golden or ochraceous, entire; pygidial plate broadly subtriangular, apex broadly truncate. 8.5–10.5 mm. Arizona and Lower California.....*velutina*
   Pubescent bands of abdominal tergites two to five white, widely interrupted at middle on second tergite, successively more narrowly interrupted on tergites three, four, and five; pygidial plate narrow, apex narrowly rounded. 7 mm. So. California.....*californica*

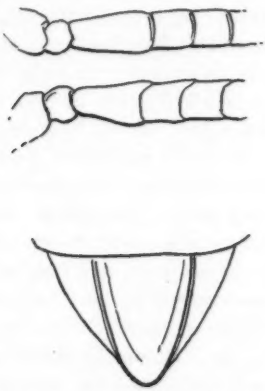

Figure 1. *Melecta thoracica* Cresson, female. Above: basal antennal segments in dorsal view (upper) and frontal view (lower). Below: pygidial plate. × 18.

Melecta (Melecta) thoracica Cresson [Fig. 1]

Melecta thoracica Cresson has not been recognized by recent workers. In my revision of nearctic Melectinae,[1] it was placed in the keys on the basis of the extremely brief original description and the few structural characters subsequently mentioned by Viereck.[2] These characters appear, however, to be valid and definitive, especially the form of the pygidial plate of the

[1] Linsley, E. G., 1939, Ann. Ent. Soc. Amer., 32: 429–468, figs. 1–9.
[2] Viereck, H. L., 1903, Trans. Amer. Ent. Soc., 29: 179.

sixth abdominal tergite of the female and the proportions of the flagellar segments of the antennae (fig. 1). A fuller description follows:

Female.—Black, pubescence of occiput, dorsum of thorax, and first abdominal tergite ochraceous to fulvous, remaining pubescence black. *Head* densely clothed with long, erect, black hairs at sides of face and about antennal bases, upper frons and clypeus thinly pubescent; upper frons and vertex closely, moderately coarsely punctate, median ocellus without a shining, impunctate triangular area in front, a distinct, elevated carina present between antennal bases and extending to base of clypeus; antennae piceous, first flagellar segment distinctly longer than second; clypeus moderately shining, finely, irregularly punctate, more coarsely and densely at base on each side of a smooth, median longitudinal basal line, base thinly clothed with long, fine, black hairs; mandibles pale, base and apex piceous. *Thorax* densely pubescent; mesoscutum with surface obscured by the long erect pubescence, surface apparently closely punctate; mesoscutellum with dorsal lobes armed with a spine which is much shorter than, and largely obscured by, the long erect hairs; mesepisterna opaque, coarsely, closely punctured, clothed with black hairs which do not obscure surface; wings dark brownish; legs moderately densely pubescent. *Propodeum* with enclosure finely punctate, nearly glabrous, otherwise clothed with long, erect, black hairs. *Abdomen* dark brownish or piceous, dull, surface tessellate, finely sparsely punctate; first tergite clothed with long, depressed or suberect, ochraceous or fulvous hairs except for a narrow median line and posterior margin, remaining segments with a few, coarse, suberect black hairs at sides; pygidial plate elongate triangular, flat, sides straight, apex evenly rounded, not liguliform. Length approximately 15 mm.

Described from a female from Buffalo, South Dakota, June 16, 1941 (H. C. Severin).

There is considerable uncertainty about the type of this species. In his original description, Cresson [3] states, "1 speci-

[3] Cresson, E. T., 1875, Wheeler Exp., Zool., 5: 726.

men; Eastern Nevada; 1872; Dr. H. C. Yarrow," in his catalogue of North American Apidae,[4] he gives the distribution as "Colorado and Nevada," and in his list of types,[5] he records the type locality as "Colorado." Mr. E. T. Cresson, Jr., who very kindly looked into the matter for the writer, reports that the putative type bears the following labels: (1) "Col," (2) "♀," (3) "Holotype 2286," (4) "M. thoracica." Mr. C. F. W. Muesebeck, who made a search for the Nevada specimen in the collections of the United States National Museum, which contain some of the material from the Wheeler Expedition, was unable to locate it. It is reasonable to suppose, therefore, that the Cresson type designation is in error and the type lost.

A New Henicopid Centiped from Utah

By RALPH V. CHAMBERLIN, University of Utah

In a small collection of centipeds and millipeds made by Prof. C. L. Hayward on the slopes of the Wasatch Mountains east of Provo, Utah, is a single specimen representing a new genus in the family Henicopidae. It belongs in the subfamily Zygethobiinae, the type of which is Zygethobius, a genus erected by the author many years ago for another Utah species living at high elevations in the Uintah and Wasatch Mountains. The present genus is the second one of the group to be found in which ocelli are wholly lacking.

Genus **Yobius,** new

This is a henicopid genus of the Zygethobiinæ, a subfamily characterized by lacking spiracles on the first pediferous segment. It is like *Buethobius* in lacking ocelli, but differs in having the tarsi of all legs biarticulate. The key given below will aid in placing the new genus among those previously known in the subfamily.

[4] Cresson, E. T., 1879, Trans. Amer. Ent. Soc., 7: 218.
[5] Cresson, E. T., 1916, Mem. Amer. Ent. Soc., 1: 132.

Generotype: *Yobius haywardi,* new species.

The name *Yobius* is given in reference to the finding of the type specimen on what is locally called "Y" Mountain.

Key to the Genera of Zygethobiinae

1. Ocelli absent 2
   Ocelli present, one on each side 3
2. Tarsi of all but last two pairs of legs uniarticulate
   Buethobius Chamberlin
   Tarsi of all legs biarticulate ..... *Yobius,* new
3. All tarsi simply biarticulate; pores on last 5 pairs of coxae
   Zygethobius Chamberlin
   The second article of all tarsi subdivided into two to many subdivisions; pores on only the last four pairs of coxae
   Esastigmatobius Silvestri

Yobius haywardi, new species

Body with head, antennae and legs yellow throughout.

Antennae moderately long, composed typically of 35 or 36 articles, of which those distad of the second are short; second article long; the first short or intermediate.

Prosternal teeth small and pale, 3 + 3, with the median sinus shallow and U-shaped.

Legs having the usual tibial spur on anterior side of distal end, otherwise without spines but bearing setae as usual. Tarsi with three claws, of which the accessory laterals are small. Tarsi biarticulate in all legs present, including the penult. It is presumed that the tarsi of the anal legs are similar, but as these legs are missing from the holotype this point is not wholly certain. The second tarsal article is relatively short.

Coxal pores circular, 2, 2, 2, 2.

Claw of the gonopods of female entire, relatively short; basal spines 2 + 2.

Length, 7.5 mm.

Locality—UTAH: Utah County, on "Y" Mountain, east of Provo. One female, lacking anal legs taken May 12, 1944, by C. L. Hayward.

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part IV

By CHARLES P. ALEXANDER, Massachusetts State College, Amherst, Massachusetts

The preceding part under this general title was published in ENTOMOLOGICAL NEWS, **56**: 126–132, 1945. In the present paper I am describing some additional novelties, almost all from the extensive Melander Collection, particularly rich in species from our northwestern states. Where the species are represented by uniques, Dr. Melander has very generously permitted me to retain the type specimens in my collection of World Tipulidae, a favor for which I express my deepest thanks.

Limonia (Limonia) yellowstonensis new species

General coloration gray, the mesonotum patterned with dark brown, including three praescutal stripes; antennae black, the bases of the flagellar segments narrowly pale and constricted; knobs of halteres dark brown; legs yellow, the tips of femora narrowly but conspicuously blackened; wings unusually narrow, especially on proximal half; ground color whitish subhyaline, heavily spotted and dotted with brown; Sc_1 ending opposite one-fourth to one-fifth the length of *Rs*; *m-cu* before the fork of *M*.

♀. Length about 6 – 6.5 mm.; wing 6.2 × 1.35 – 6.8 × 1.45 mm.

Rostrum brownish black, sparsely pruinose; palpi black. Antennae chiefly black, the scape weakly pruinose; flagellar segments with their bases narrowly pale, the remainder dark brown, the basal stems of the outer segments becoming more constricted; terminal segment a little longer than the penultimate. Head dark brownish gray, vaguely patterned with darker.

Pronotum gray, patterned with dark brown. Mesonotum gray, the praescutum with three conspicuous black stripes, the median one vaguely split by a capillary paler vitta, this less dis-

tinct in the holotype; scutal lobes likewise conspicuously blackened. Pleura gray; dorsopleural membrane infuscated. Halteres with stem yellow, knob dark brown. Legs with coxae brownish testaceous, the posterior pair paler; trochanters obscure yellow; femora light yellow, the tips narrowly but conspicuously blackened; tibiae yellow, the tips very narrowly and vaguely infuscated; proximal two tarsal segments yellow, the tips darker; outer tarsal segments infuscated. Wings unusually narrow, especially on more than the proximal half; ground color whitish subhyaline, heavily spotted and dotted with brown; the larger areas include, additional to the uniformly darkened stigma, a series of three costal areas, these subequal to or more extensive than the interspaces; third dark area a common one over the origin of *Rs* and fork of *Sc*; besides brown seams over cord, outer end of cell *1st* M_2 and at ends of the veins, numerous brown dots in the cells, all more or less confluent, in the outer medial field unusually extensive and suffusing the veins; veins yellow, brown in the patterned areas. Venation: *Sc* moderately long, Sc_1 ending about opposite one-fourth to one-fifth the length of *Rs*, Sc_2 faintly indicated to lacking; cell *1st* M_2 nearly as long as vein M_{1+2} beyond it; *m-cu* from about two-fifths to three-fourths its length before the fork of *M*.

Abdominal tergites yellowish brown to dark brown, still darker laterally, the surface more or less pruinose; sternites obscure brownish yellow to light brown.

Habitat.—WYOMING. *Holotype:* ♀, Yellowstone National Park, August 25, 1934 (C. P. Alexander). *Paratopotype:* 1 ♀.

The most similar described species is *Limonia* (*Limonia*) *nelliana* (Alexander) from an unknown station in Colorado. This is a larger fly, with broader wings and with vein *Sc* very short, Sc_1 ending opposite the origin of *Rs*. The structure of the male hypopygium of *nelliana* shows that it is quite distinct from *L.* (*L.*) *venusta* (Bergroth) and allies. The discovery of the male sex of the present fly will be of much interest.

Erioptera (Ilisia) polycantha new species

Allied to *sparsa;* general coloration of mesonotum dark gray,

the posterior sclerites variegated with chestnut brown; basal flagellar segments yellow; legs yellow, the tips of the femora, tibiae and basitarsi infuscated; wings yellow, spotted with brown; male hypopygium with the inner arm of the outer dististyle terminating in a sharp recurved spine, on outer margin of base with several acute spinulose points; phallosome with the lateral apophyses gradually narrowed to acute points.

♂. Length about 5 mm.; wing 6 mm.

Rostrum and palpi brownish black. Antennae with the scape and pedicel light brown, basal flagellar segments yellow, the outer ones infuscated; flagellar segments with the longest verticils unilaterally distributed, exceeding the segments. Head brownish gray.

Pronotum light brown medially, darker on sides; scutellum and pretergites light yellow. Mesonotum chiefly dark gray, the praescutum with indications of a darker plumbeous gray central stripe; pseudosutural foveae and tuberculate pits black; posterior sclerites of notum chiefly dark gray, the posterior border of scutellum, most of the parascutella, and the broad lateral borders of the mediotergite more chestnut brown. Pleura chiefly brownish gray, the propleura extensively obscure yellow, concolorous with the dorsopleural membrane. Halteres uniformly pale yellow. Legs with the coxae and trochanters brownish yellow; femora, tibiae and basitarsi yellow, the tips infuscated, slightly more extensively so on femora; remainder of tarsi dark brown. Wings with the ground color yellow, restrictedly but handsomely patterned with brown, including spots as follows: At *h*; arculus; origin of *Rs*; Sc_2; marginal areas at ends of all longitudinal veins excepting R_5 and *1st A*, largest at R_{1+2}, R_3 and *2nd A*; an oblique seam on anterior cord from *C* to *r-m*, widest in front; other seams over *m-cu*, *m* and as a spot on basal section of M_3; veins yellow, dark brown in the patterned fields. Venation: Sc_2 about opposite one-third *Rs*; R_2 and R_{2+3} subequal; cell *1st* M_2 elongate, the basal section of M_3 more than twice *m*; *m-cu* transverse, almost its own length before the fork of *M*; vein *2nd A* nearly straight, the anal veins divergent.

Abdomen, including hypopygium, dark brown. Male hypopygium with the dististyles virtually terminal in position, the mesal portion of basistyle slightly produced beyond their bases. Outer dististyle profoundly bifid, the outer arm a long brownish yellow, paddle-like blade; inner arm blackened, gradually narrowed to a sharp recurved spine, on face of style before midlength with a strong black spine; besides the above, outer margin of the basal half with four or five small erect spinulose points. Inner dististyle relatively narrow, entirely fleshy. Phallosome with the lateral apophyses appearing as broad black plates, gradually narrowed to acute points, the outer margin microscopically serrulate or roughened; inner apophyses appearing as short slender black spines that are directed strongly laterad.

Habitat.—WASHINGTON. *Holotype:* ♂, Quilcene, Jefferson Co., July 24, 1917 (A. L. Melander).

The most similar species is *Erioptera* (*Ilisia*) *sparsa* Alexander, of California, which has the details of the male hypopygium, particularly the outer dististyle and the phallosome, entirely different. The unusually spinose inner arm of the outer style is distinctive.

Ormosia (Ormosia) hispa new species

Belongs to the *manicata* group; general coloration of mesonotum reddish brown, of pleura and abdomen more yellowed; wings whitish subhyaline, the stigmal region faintly more darkened; R_2 very oblique; male hypopygium with the tergal lobes unusually dilated; phallosome very large, complex and heavily sclerotized; furcula widely expanded toward apex, deeply forked, the arms truncate at tips and provided with numerous microscopic spinulae; near midlength of phallosome with a very high crest or flange.

♂ Length about 4.5 mm.; wing 5.1 mm.; antenna about 0.75 mm.

Rostrum brownish yellow; palpi medium brown. Antennae short; scape light brown, pedicel large, pale yellow, flagellum

brown; flagellar segments elongate, slightly dilated before midlength and here provided with long conspicuous verticils, these exceeding the segments in length. Head light reddish brown.

Pronotum and pretergites yellow. Mesonotum chiefly reddish brown, the surface gray pruinose, especially on the posterior sclerites; lateral portion of praescutum restrictedly more yellowed. Pleura chiefly reddish yellow. Halteres relatively elongate, stem pale yellow, knob weakly more darkened. Legs with coxae and trochanters yellow; remainder of legs broken. Wings whitish subhyaline, the prearcular and costal regions slightly more yellowed; stigmal region faintly more darkened; veins brown, yellow in the brightened fields. Venation: Sc_1 ending just before the unusually oblique R_2, Sc_2 about opposite one-fifth to one-sixth the length of the long Rs; cell M_2 open by the atrophy of the basal section of M_3; *m-cu* close to the fork of M; Anal veins divergent.

Abdomen, including hypopygium, chiefly yellow. Male hypopygium with the tergal lobes even more dilated than in *manicata* and allies. Both dististyles unusually narrow, the outer style arcuated, its distal half with microscopic setulae; inner style subequal in length, nearly straight, the length about six times the diameter at midlength, the apex obliquely truncated. Phallosome unusually large, complex and heavily sclerotized; furcula widely expanded at apex, the two arms with numerous microscopic spinulae, especially along the margins of the notch, the apices obliquely truncated; at near midlength of phallosome with a very high crest or flange; what appears to represent the aedeagus originates still more basad, bifurcate at its tip.

Habitat.—WASHINGTON. *Holotype:* ♂, Puget, Thurston Co., July 4, 1925 (A. L. Melander).

Ormosia (*Ormosia*) *hispa* is entirely different from the other species of the *manicata* group, especially in the very distinct phallosome of the male hypopygium. The other species, *O.* (*O.*) *manicata* Doane (*deviata* Dietz, *fuscopyga* Alexander) and *O.* (*O.*) *modica* Dietz (*stylifer* Alexander) of North

America, and *O.* (*O.*) *subdeviata* Alexander, of Japan, are all much more closely allied among themselves. *O.* (*O.*) *profunda* Alexander, of western North America, is even more isolated and generalized but from the structure of the phallosome I believe should be referred to this group of *Ormosia.*

Molophilus (Molophilus) distilobatus new species

Belongs to the *gracilis* group, *pubipennis* subgroup; general coloration of mesonotum reddish brown, variegated with yellow; antennae short, the more proximal flagellar segments with very long verticils; legs yellow, tips of femora and tibiae inconspicuously darkened; wings grayish yellow; male hypopygium with the basistyle unusually long, the lobes lying far distad; mesal lobe with the blackened spinous setae all near apex of lobe; a supplementary slender flattened blade at edge of mesal lobe; both dististyles pointed at their tips; phallosome with long pale setae.

♂. Length about 4.5 mm.; wing 5 mm.; antenna about 1.1 mm.

Rostrum light brown; palpi black. Antennae short; basal segments yellow, outer ones passing into pale brown; the more basal segments with unusually long verticils, the longest about twice the segments, those of the outer segments smaller; remaining vestiture of segments abundant but pale and inconspicuous. Head above chiefly dark brownish gray, the anterior and posterior portions yellowed.

Pronotum yellow, vaguely more darkened medially above; pretergites yellow. Mesonotum reddish brown, very sparsely pruinose, the humeral region extensively light yellow, the extreme lateral borders back to the suture very narrowly so; scutellum infuscated, its posterior border narrowly obscure yellow; postnotum infuscated, the suture between mediotergite and pleurotergite conspicuously yellow. Pleura chiefly reddish brown, more heavily darkened on the anepisternum, the remainder more or less variegated by yellow. Halteres with stem whitened, its outer portion weakly infuscated, apex of knob

light yellow. Legs with coxae reddish yellow; trochanters yellow; remainder of legs yellow, the tips of the femora somewhat extensively but very vaguely darkened, of the tibiae more narrowly so; outer tarsal segments brownish black. Wings grayish yellow, the prearcular and costal fields clear light yellow; veins brownish yellow, macrotrichia brown. Venation: R_2 virtually in alignment with *r-m*; petiole of cell M_3 about twice *m-cu*; vein *2nd A* sinuous, narrowing the cell on outer half, ending about opposite one-third the length of the petiole of cell M_3.

Abdominal tergites brown, with narrowly pale posterior borders; sternites more yellowed. Male hypopygium with the basistyle unusually long, the lobes lying far distad, including both the ventral and mesal ones, both on the same general level and terminating before the tips of the dististyles. On edge of mesal lobe a small and relatively slender flattened lobe, its surface with rather numerous setae on the outer portion, the apex and inner edge of the blade glabrous; main portion of mesal lobe broad, with about 18 black spinous setae, all placed near the apex. Outer dististyle moderately curved, slender, narrowed to the acute tip, the outer margin with a few appressed spines. Inner dististyle longer, strongly bent beyond midlength, narrowed to the long apical spine, the ventral margin of outer half with coarse conspicuous spines; face of style near midlength with a few very long setae. Phallosome broad, subacute at apex, the surface with numerous long pale setae.

Habitat.—Oregon. *Holotype:* ♂, Viento, Wasco Co., July 1, 1917 (A. L. Melander).

From the other regional members of the *pubipennis* subgroup having short antennae in the male sex, the present fly differs somewhat conspicuously in the structure of the male hypopygium, particularly of the basistyle and its lobes. It is most similar to *Molophilus* (*Molophilus*) *spiculatus* Alexander, yet entirely distinct.

Personals

Dr. Nathan Banks. As of July first, Dr. Banks will retire from the position of Curator of Insects in the Museum of Comparative Zoology at Harvard College, Cambridge, Massachusetts. Dr. Banks will continue his work on the Neuropteroids and on the Psammocharids. Personal mail should be addressed to 103 Norfolk Street, Holliston, Massachusetts.

Dr. A. Glenn Richards, Jr. is relinquishing his Assistant Professorship of Zoology at the University of Pennsylvania to become an Associate Professor at Minnesota. He is to inaugurate a graduate course and research in Insect Physiology, to establish a research laboratory in insect physiology and to continue the course in Insecticides. His new address, as of July 1st, is: Division of Entomology and Economic Zoology, University of Minnesota, St. Paul 8, Minnesota.

Dr. Richards, since 1942, has also served as the Recording Secretary of the American Entomological Society, and as Secretary of its Council, and brought to those offices discerning ability and tactful judgment, for which the thanks of the Society and of its members follow Dr. Richards to his new post.

For his effective work on ENTOMOLOGICAL NEWS,—as a member of its Editorial Staff since 1942, and as Managing Editor from January 1944 to May 1945,—the NEWS wishes to express to Dr. Richards its grateful acknowledgement and thanks. The NEWS extends to him its best wishes for success and joy in his new field of activity.

Dr. Frank E. Blaisdell, Sr., California's well known Coleopterist, has retired and moved away from San Francisco; also given up his research studies. His new address is 22 High Street, Watsonville, California.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

Typhus in Naples: Typhus is a louse-borne disease which can be effectively controlled only as lice are exterminated. Shortly after its capture by the Allies, Naples was threatened by a serious epidemic. Thousands had lived in bomb-shelters with inadequate sanitary arrangements and the situation was ripe for an explosive outburst of the disease. The Rockefeller Foundation's typhus team, using their new method for application of insecticide without removing clothes, undertook the mass delousing of the entire population. Forty delousing stations were established to which the people came by the thousands and tens of thousands. Men dusters cared for the boys and men, and a staff of women cared for the girls and women and the white DDT powder was applied directly by compressed air guns which swoshed it up trousers and skirts, down sleeves, into collars, seams, tucks and folds, wherever the insect or its eggs might cling. More than 1,300,000 were treated in January alone, and Naples has a population of less than 1,000,000, which shows that some people came for more than one treatment. If well dusted, DDT will protect the body against lice for four to five weeks. The epidemic in Naples which might have taken thousands of lives collapsed with astonishing rapidity.

Yellow Fever. Research in yellow fever is now being carried on by the Rockefeller Foundation in seven localities outside the United States, four of them in South America and three in Africa.

In Villavicencio, Colombia, in an endemic yellow fever region, more than 2,000 animals have been trapped, ranging all the way from mice to wildcats and monkeys, and from birds to snakes and other reptiles. Immunity and inoculation tests gave positive results in only two species—the monkey and the opossum. That is, antibodies against yellow fever were found in their bloodstreams, evidence that at some time past they had been infected with the virus.

In June 1944, the laboratory at Ilhéus, Brazil, trapped a sick monkey, a marmoset. In its bloodstream were discovered not antibodies, but the active virus of yellow fever. The animal was seriously ill and soon died, and exhaustive laboratory tests showed conclusively that it had died of yellow fever.

This episode is historically interesting, because it is the first time in any country that a wild animal has been picked up in its natural habitat suffering from yellow fever. It lends support to the thesis that yellow fever is primarily a disease of jungle animals transmitted by jungle mosquitoes. But there are many questions still to be answered. How is jungle yellow fever transmitted to man? Where is the reservoir of the virus during the periods between epidemics? In brief, where does the sporadic infection come from and what keeps it going? From: THE ROCKEFELLER FOUNDATION, A REVIEW FOR 1944.

Current Entomological Literature

COMPILED BY THE EDITORIAL STAFF

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Beebe, W.—Jean Henry Fabre. Tribulations of a naturalist and the courtship of the scorpion. [Book of Naturalists] pp. 213–33. (See also under Hymenoptera and Arachnida.) **Carpenter, F. M.**—Carboniferous insects from the valley of Mazon Creek, Ill. [Illinois Sta. Mus., Sci Pap.] 3: 20 pp., ill. (*). **Endicott, A.**—Preliminary survey of insects visiting goldenrod in Itasca

Park, Minn. [Proc. Minn. Acad. Sci.] 11: 28. **MacCreary, D.**—Some ectoparasites, excluding Ixodoidea, of Delaware mammals. [12] 38: 126–27. **de Oliveira, S. J.**—Diclorodifenil-tricloroetana (DDT) no combate as brocas de livros: Dorcatoma bibliophagum e Catorama herbarium (Anob). [105] 15: 325–28. **Reeks & Smith.**—List of some forest insects of Newfoundland. [Scadian Nat., N. Brunswick] 2 (5): 1–17.

ANATOMY, PHYSIOLOGY, MEDICAL—Beebe, W.—Rene Antoine Ferchault de Reaumur. Why ants have wings. [Book of Naturalists] pp. 39–44. **Cragg & Ramage.**—Chemotropic studies on the blow-flies Lucilia sericata and L. caesar. [116] 36: 168–75. **Day, M. F.**—Corpus allatum of the sheep ked. [5] 50: 1–8 (1943). **Goldschmidt, R. B.**—Podoptera, a homoeotic mutant of Drosophila and the origin of the insect wing. [68] 101: 389–90. **Harrington, C. D.**—Biological races of the pea aphid. [12] 38: 12–22. **Hartman, C. G.**—How Odynerus suspends her egg. [5] 51: 1–4, 1944. **Hartman, C. G., et al.**—Notes on the habits of Osmia georgica as ascertained by the glass-tube method. [5] 51: 162–65 (1944). **Ludwig, D.**—Effects of atmospheric humidity on animal life. [23] 18: 103–35. **Marvin, P. H.**—Effectiveness of macrocentrus ancylivorus reared from strawberry leaf roller in parasitizing oriental fruit moth. [12] 38: 119. **Milne, A.**—Ecology of of the sheep tick, Ixodes ricinus. Seasonal activity in Britain with particular reference to northern England. Host availability and seasonal activity. [116] 36: 142–52; 153–57. **Parman, et al.**—Overwintering ecology of the screwworm, Cochliomyia americana—a symposium (5 papers). [12] 38: 66–90. **Schneirla, T. C.**—Army-ant behavior pattern: Nomad-statary relations in the swarmers and the problem of migration. [92] 88: 166–93. **Sommerman, K. M.**—Bionomics of Ectopsocus pumilis (Corrod.). [5] 50: 53–64 (1933), ill. **Sulkin, S. E.**—Recovery of equine encephalomyelitis virus (Western type) from chicken mites. [68] 101: 381–83. **Tshernov, O.**—Biological peculiarities of nymphs of Ephemeroptera on which sterlets of dvina feed. [Zool. Jour., Moscow] 23: 216–20. (Russian with Eng. Sum.) **Vellard, J.**—Cuatro conferencias sobre animales venenosos. [Inst. Univ. Pas Paris en Buenos Aires] 71 pp. **Wellington, W. G.**—Conditions governing the distribution of insects in the free atmosphere. [4] 77: 7–15.

ARACHNIDA & MYRIOPODA—Beebe, W.—(See under General.) **Bishopp & Trembley.**—Distribution and hosts of certain N. Amer. ticks. [17] 31: 1–54. **Bryant, E. B.**—Notes on Dictyolathys maculata (Araneae). [5] 50: 83–86 (1943). Three species of Coleosoma from Florida. [5] 51: 51–58, ill. (1944). **Crane, J.**—Spiders of the family Salticidae from Brit. Guinana and Venez. [18] 30: 33–42, ill. (*). **Goodnight, C. J. & M. L.**—Duas esp. nov. de opilioes Sul-Americanos. [105] 15: 332–34, ill. **Loomis, H. F.**—Millipeds principally collected by Prof. H. E. Shelford in the eastern and southeastern states. [5] 51: 166–77, ill. (1944) (*). **Milne, A.**—(See under physiology.) **Turk, F. A.**—Studies of Acari. II. Descr. of new sp. and notes on established forms of parasitic mites. [116] 36: 133–41, ill.

SMALLER ORDERS AND ORTHOPTERA—Banks, N.—New Neuroptera and Trichoptera from the U. S. [5] 50: 74–81 (1943). **Carpenter, F. M.**—Notes on Nearctic Neuroptera. [5] 49: 49–51 (1942). (See also under General.) **da Costa Lima, A.**—Sobre dois fosseis da bacia terciaria de Fonseca (Alvinopolis—Minas Gerais). [15] 16: 291–92, ill. **Emerson, A. E.**—Kolotermes milleri, n.sp. of termite from the Florida keys and Jamaica. [5] 50: 18–22 (1943). **Milne & Milne.**—Caddis flies (trich.) and pitcher plants. [5] 51: 179–82 (1944). **Prince, F. M.**—Description of three new sp. of Dactylopsylla and one new subsp. of Foxella, with records of other species and genera (Siphonaptera). [4] 77: 15–20, ill. **Sommerman, K. M.**—(See under physiology.) **Strohecker, F. H.**—An Ammobaenetes from Nevada (Gryllacrid). [5] 51: 147–50, ill. (1944). **Steyskal, G. C.**—Notes on Nallachius americanus (Dilar., Neur.). [5] 51: 183–84 (1944).

HEMIPTERA—Callan, E. McC.—Cacao stink-bugs in Trinidad (Pentatomid). [105] 15: 321–24. **Drake & Harris.**—New Pheumatobates from Brazil, with a note on R. imitator (Gerrid). [105] 15: 269–72, ill. **Fennah, R. G.**—New species of Bothriocera (Cixiid) from the Lesser Antilles. [5] 50: 9–17 (1943). **Usinger, R. L.**—Annectant genus of Cimicoidea from Baltic amber. [5] 49: 41–47 (1943). **Wygodzinsky, P.**—Additional notes on the Brazilian sps. of gen. Aradus. Notas sobre Reduvioidea. [105] 15: 326–31, ill.; 342–51, ill.

LEPIDOPTERA—Beebe & Fleming.—Sphingidae of Kartabo, Br. Guiana and Caripito, Venezuela. [18] 30: 1–

6. **Clench, H. K.**—Lycaenidae of the Bahama Is. [5] 49: 52–60 (1942). New Calisto from Hispaniola and Cuba. [5] 50: 23–29 (1943). Notes on Calisto. [5] 50: 115 (1943). **Gorham, R. P.**—Lepidoptera (moths) taken in and near Fredericton, N. B. [Acadian Nat. N. Brunswick] 2 (5): 52–66. **Lichy, R.**—Documents pour servir a l'etude des lepidopteres du Venezuela. 2. Terias gratiosa (Peierid). Documents pour servir a l'etude des Sphingidae du Venezuela 6. Madoryx oiclus. [46] 3: 193–94; 195–202, ill. **Loveridge, A.**—Wings of the mourning cloak butterfly snipped by ant. [5] 51: 178 (1944). **Nabokov, V.**—New or little known nearctic Neonympha. [5] 49: 61–80 (1943). Female of Neonympha maniola. [5] 50: 33 (1943). Nearctic forms of Lycaeides. [5] 50: 87–99 (1943). Notes on the morphology of the genus Lycaeides. [5] 51: 104–38, ill. (1944).

DIPTERA—Alexander, C. P.—New Nearctic craneflies. [4] 77: 1–6. New or little-known Tipulidae from Venezuela. V. [46] 3: 171–92. Records & descr. of Brazilian Tipulidae. XI. Two undescr. sps. of Psychodid diptera from Tropical Amer. [105] 15: 292–312; 313–17. Records & descr. of N. Am. crane flies. V. Tipuloidea of Grand Teton Nat. Park & Teton Nat. Forest, Wyo. [119] 33: 391–439, ill. (*). **Baker, E. W.**—Studies on the Mexican fruitfly known as Anastrepha fraterculus. [12] 38: 95–100. **Barnes, R. C.**—Anopheles walkeri in diurnal shelters in Massachusetts. [12] 38: 114. **Bequaert, J.**—Notes on Hippoboscidae. 18. The genus Chypteromyia; with the descr. of a n.sp. [5] 49: 108–17 (1942). Further studies of the Tabanidae of Trinidad. [5] 51: 12–21 (k), (1944). **Bromley, S. W.**—Bee-killing asilids in N. England. [5] 49: 81–83 (1943). **Brues, C. T.**—N. Amer. species of Chaetopleuromorpha (Phorid). [5] 50: 50–52 (1943). New neotropical Phoridae. [5] 51: 151–61 (1944). **Eyles & Burgess.**—Anopheles walkeri in S. Carolina. [12] 38: 115. **Hull, F. M.**—New species of Syrphidae from the neotropical region. [5] 49: 84–107 (1942). Studies on Syrphid flies in the Mus. Comp. Anat. [5] 51: 22–45 (1944). Revisional study of the fossil Syrphidae. [26] 95: 251–353, ill. (*). Some n.sps. of genus Salpinogaster (Syrphid). [46] 3: 165–70 (S). **Johannsen, O. A.**—Noxious species of Phlebotomus in the Okefenokee Swamp, Ga. [5] 50: 112–13 (1943). **Lane, J.**—As esp. Neotropical do gen. Clinohelea (Ceratopog.) Zoogeography of Neotropical Ano-

phelini (Culicid). [105] 15: 249–61; 262–68 (*). **Schoof & Schell.**—Survival of anopheline larvae and pupae in muck. [12] 38: 113–14. **Stone, A.**—Notes on gen. Trichoprosopon (Culicid). [105] 15: 335–41 (S). **Thurman, Ogden & Eyles.**—United States record for Culex interrogator. [12] 38: 115.

COLEOPTERA—Monte, O.—Sobre Coleopteros Otidocephalinae. [105] 15: 318–20 (*). **Patterson & Hatch.**—Annotated list of the Scolytoidea of Washington. [Univ. Wash. Pub., Biol.] 10: 147–54. **Werner, F. G.**—Rev. of the gen. Pleomorpha. Three n.sp. of Cebrio. [5] 50: 30–32, 34–36 (1943). New N. Amer. species of Epicauta. [5] 50: 65–73 (1943).

HYMENOPTERA—Banks, N.—Two new genera in Psammocharidae. [5] 50:82 (1943). **Beebe, W.**—Thomas Belt. Driver ants. [Book of Naturalists] pp. 151–59. Maurice Maeterlinck. The Swarm. [Book of Naturalists] pp. 197–212. (See also under Anatomy.) **Benson, R. B.**—Blasticotomidae in the miocene of Florissant, Colorado. [5] 49: 47–48 (1942). **Buren, W. F.**—New fungus growing ant from Mexico. [5] 51: 5–7 (1944). **Enzmann, E. V.**—Systematic notes on the genus Pseudomyrma. [5] 51: 49–103, ill. (1944), (k*). **Haeussler, G. J.**—Gambrus stokesii, an Australian parasite of codling moth and oriental fruit moth. [12] 38: 103–06. **Hartman, C. G.**—(See under Physiology.) **Michener, C. D.**—New bee of the genus Heriades from Panama. [5] 50: 109–11 (1943). **Moure, J.**—Notas sobre Abelhas da Colecao Zikan. II. (Apoid.) [105] 15: 273–91 (*). **Rau, P.**—Appearance of Vespula squamosa in Missouri. [5] 50: 114 (1943). Wasps feeding on comb honey. [5] 51: 50 (1944). **Schneirla, T. C.**—(See under Physiology.)

LIST OF JOURNALS CITED

4.—Canadian Entom. 5.—Psyche, Jour. of Entom. 12.—Jour. Economic Entom. 15.—Anais Acad. Brasil. Cien., Rio. 17.—Jour. Parasitology. 18.—Zoologica, New York. 23.—Physiological Zool. 26.—Bull. Mus. Comparative Zool. 46.—Bol. Entom. Venezolana. 68.—Science, New York. 92.—Biological Bull. 105.—Rev. Entomol. R. d. Janeiro. 116.—Parasitology, London. 119.—Amer. Midland Nat.

FOR SALE

PAPILIO PONCEANA

Many rare butterflies of South Florida and the Florida Keys

For information write

FLORENCE MOORE GRIMSHAWE

766 N.W. 13 Ave., Miami, Fla.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Lepidoptera—Would like to exchange Californian butterflies, noctuids, geometrids, etc. for eastern specimens. Glenn E. Pollard, 500 Clark Drive, San Mateo, Calif.

Lepidoptera—Am still collecting here and have only fine specimens for exchange. H. W. Eustis, Woodbine Rd., Augusta, Ga.

Wanted—Viennese Entomological Printing Press, for printing 3, 3½ and 4 type data labels. Kent H. Wilson, 430 Ridgewood Road, Fort Worth 7, Texas.

Wanted—Heteroptera from all parts of the world, all families except Miridae. Will buy, exchange or determine. S. and C. Amer. species esp. desired. John C. Lutz, 6623 Lansdowne Ave., Philadelphia 31, Pa.

Wanted—Mosquitoes for determination, or exchange for S. E. specimens. Particularly desire larvae. H. R. Dodge, Box 1095, Macon, Ga.

Arctic Lepidoptera on hand, including Erebia, Oeneis and Brenthis. R. J. Fitch, Lloydminster, Sask., Canada.

ENTOMOLOGISTS!

To serve you is *our* business.

Remember we offer

Insect collecting and storing equipment

designed by

Entomologists for Entomologists.

Life Histories accurately and attractively assembled.

Specimens from all over the world for the general collector and the specialist.

Be sure and write us concerning your problems. We are always glad to send our catalogues and lists.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.

P. O. Box 24, Beechwood Station Rochester 9, N. Y.

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.